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zones of different reflective power; the inner one possessing the least, and being also much narrower than the other. That nearest the bright ring has been repeatedly seen *in twilight*, extending to about *one-third* of the interval between the bright ring and the ball; its outer and inner edges presenting an elliptic curve pretty well defined for so faint an object. As the twilight faded, another, interior, and narrower zone has appeared, having also a well-defined elliptic inner edge; an extremely narrow dark boundary, or division, lying between the two. When the obscure ring, taken as a whole, appears broadest, it is not of *uniform* brightness, the outer portion being the brighter: and in ordinary states of the air, this outer portion alone is visible; while, during occasional fits of better vision, and on very fine nights, the inner portion also is seen.

"Supposing that, according to Struve's measures, the interval between the ball and the interior bright ring is 4″·34, I should estimate the breadth of the different portions nearly as follows:—

	″
Dark boundary, or interval, between bright ring and exterior obscure ring	0·3
Breadth of the exterior obscure ring	1·1
Breadth of interior obscure ring and dark boundary between the two	0·6
	2·0
Interval between inner edge and the ball	2·34

"On the whole, the idea of two rings appears more probable than that of two zones of different reflective power on the same ring; since, in the latter case, the inner edge of the exterior one would be unlikely to present a well-defined elliptic outline.

"Micrometrical measurements of the breadth of the obscure ring have been repeatedly attempted; but the difficulty of the observation is extreme. The results are the following, reduced to the mean distance of *Saturn*. They include the whole space from the inner edge of the bright ring to the inner edge of the obscure ring when most perfectly seen. Power employed on each occasion 375.

	″					
1850. Dec. 20	1·807	by	6	observations.	Weight	6
22	1·967	—	6	—	—	10
1851. Jan. 23	1·958	—	10	—	—	32
Mean, allowing weights =	1·941	—	22	—	—	48

"I have always observed, that the upper and more distant portion of the obscure ring is more plainly seen than the corresponding portion on the side nearest to the earth; and also that the projection of it at its inner axis is considerably narrower than accords with its breadth at the major axis."

Extract of a Letter from Father Secchi, Director of the Observatory of the Collegio Romano, to the Astronomer Royal.

"January 15, 1851.

"We have calculated the elements of *Egeria*, by Professor

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Challis's method, using the Naples observations of November 8th, 15th, and 22d, made by M. de Gasparis. the results which follow can only be regarded as a rough approximation.

Epoch, November 15·0, 1850, Greenwich Mean Time.

	°	′	″	
Mean Anomaly	293	38	14·25	
Long. of Perihelion	114	35	11·5	Mean Eq^x.
Ascending Node....................	43	46	33·86	January 1850.
Inclination	15	35	53·80	
Mean Diurnal Motion	872″·401169			
Semi-axis Major..................	2·547967			
Excentricity	0·09667279			
Sidereal Period	4^yrs·0671539			

"We have applied the corrections for aberration and parallax, nutation and precession. The middle observation is exactly represented; the extremes are also exactly represented in right ascension, but in declination there is a difference for the first of $+3''\cdot5$, and in the last of $-3''\cdot1$, which seems to indicate a correction to be made in the inclination and node. As soon as we have new observations these elements will be corrected.

Saturn's Ring.—"I observed on the evening of the 23d of November, 1850, that the shadow of the ball on the ring was slightly curved, its convexity being opposed to the ball. The inner edge of the planet seemed to me also exceedingly ill defined, and I supposed both phenomena to be due to a convexity in the surface of the ring. I wrote about this subject to Mr. Lassell, who answered that he too had seen the shadow so curved, and also a kind of crape veil, or shade in the inside of the inner ring, which seems to extend in a dark thin line before the planet, where it is crossed by the ring. This is exactly what I, too, have seen since the indication of Mr. Lassell, who with his powerful telescope could see clearly what we could only see in a confused manner.* There is, therefore, something new in this marvellous planet, but I need say no more since you will have better information from Mr. Lassell himself."

At the close of the meeting, Sir John Lubbock favoured the Society with some remarks on the properties and uses of the *Gnomonic Projection of the Sphere.*

The especial view of this lecture was to point out the facility with which, by means of maps drawn upon this projection, the solution of problems in what is called "the use of the globes" may be accomplished.†

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* The observations of MM. Dawes and Lassell on the novel appendage to *Saturn*, were made at Wateringbury with Mr. Dawes' refractor of 6⅓ inches aperture, the workmanship of Merz, of Munich.

† A demonstration of the rules for performing these operations will be found

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As the circles of the sphere in this projection are laid down according to their perspective representations, as viewed from the eye placed at the centre of the sphere, it is necessary to bear in mind the rules by which accurate projections upon a given plane of any original lines are procured.

Having recapitulated these rules, the author pointed out how any great circle can be graduated, and how a great circle can be drawn making any given angle with another.

Problems connected with the rising and setting of stars and the like, depend upon finding the horizon. This is easily accomplished by ascertaining, from the sidereal time and the latitude of the place, the cardinal points; and a straight line joining any two of them represents the horizon. The method of laying down the vertical circles was explained.

The author also remarked that, by means of the rules of perspective, not only the projection of any given circle upon any given plane may be drawn, but conversely, the original circle of which any given conic section may be the projection, can be determined.

It was shown how, by means of this principle, a general method was furnished of constructing by points any given conic section, and of drawing tangents to it from points either situated or not upon the curve.

VICTORIA.

LIVERPOOL. Equatoreal. (Mr. Hartnup.)

1851.	Green. M.T.	R.A.	Log $\frac{p}{P}$	N.P.D.	Log $\frac{q}{P}$	Star of Comparison.
	h m s	h m s		° ′ ″		
Jan. 12	6 51 20·7	0 36 0·83	+8·186	83 3 48·6	−9·8614	δ Piscium
	7 21 18·2	2·75	·302	43·0	·8638	—
22	8 24 21·3	51 10·99	·501	82 2 10·4	·8695	ε Piscium
	8 54 18·7	12·89	·540	6·1	·8748	—
23	7 44 30·9	0 52 40·80	·434	81 55 52·6	·8630	δ Piscium
	8 4 29·4	42·12	+8·472	46·0	−9·8661	—

Where P is the equatoreal horizontal parallax, p and q the corrections for parallax in time and arc respectively.

The assumed *mean* places of the stars of comparison for 1851·0, are derived from the Greenwich 12-year Catalogue.

	R.A.	N.P.D.
	h m s	° ′ ″
δ Piscium	0 40 57·29	83 13 36·56
ε —	0 55 12·86	82 54 47·81

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in Sir John Lubbock's tract *On the Gnomonic Projection of the Sphere*: small maps of the earth and of the heavens on the gnomonic projection may be procured at No. 6 Charing Cross for 1*d.* each. Sir John states that he can solve problems on these maps as exactly as by a 12-inch globe.